MS 250V / MS 300V
Power Supply

Instruction Manual

Catalog Nos. MP-250V
MP-300V

www.majorsci.com
service@majorsci.com

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Un Packing list

MP-250V or MP-300V:

- 1 x MP-250V or MP-300V
- 1 x US Plug Power Cord or
  1 x Euro Plug Power Cord or
  1 x UK Plug Power Cord or
  1 x Israel Plug Power Cord
- 1 x MS 250V / MS 300V Power Supply Instruction Manual

Major Science is liable for all missing or damaged parts / accessories within 7 days after customer received this instrument package. Please contact Major Science immediately regarding this issue. If no response within such time period from consignee party, that will be consignee party's whole responsibility.

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  1 x Israel Plug Power Cord
- 1 x MS 250V / MS 300V Power Supply Instruction Manual

Signed:
Date:

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Warning

Major Science MS 250V / MS 300V power supply series has been tested and found to comply with the limits for the CE regulation. Also, MS 250V / MS 300V power supply series is RoHS compliant to deliver confident product, which meets the environmental directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This power supply series generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this power supply series in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended the user to read carefully the following points before this equipment is operated.

1. Read and follow carefully the manual instructions.
2. Do not alter the power supply series. Failure adhered to these directions could result in personal and/ or laboratory hazards, as well as invalidate equipment warranty.
3. Use a properly grounded electrical outlet with correct voltage and current handing capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. In the event, solution is accidentally spilled into the instrument, disconnect grounded plug and the user must carry out appropriate procedure or contact Major Science or the representative. Replace damaged parts.
6. Do not use in the presence of flammable or combustible material; fire or explosion may result. This device contains components, which may ignite such materials.
7. Refer maintenance and servicing to qualified personnel.
8. Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to properly connection may create fire or shock hazard.
9. Ensure the appropriate used materials and correct operation to avoid possible hazards of explosion, implosion or release of toxic or flammable gases arising from the materials being overheated.

10. The unit shall be operated Only by qualified personnel.

Safety Information

Use the high level of precautions against any electrical device. Before connecting with the electrical supply, check the supply voltage is within the range stated at the rating label, and this device must be earthed. Place the unit in a safe and dry location and MUST NOT touch things in the surrounding. Also do follow the safety precautions for chemicals and dangerous materials. If needed, please contact qualified service representative or contact service@majorsci.com

Environmental Conditions

Ensure the instrument is installed and operated strictly in the following conditions:

- ≤95% RH,
- 75 KPa-106 Kpa,
- Altitude not to exceed 2000 meters
- Ambient ~ 40℃ operating temperature.

Avoiding Electrical Shock

Follow the guidelines below to ensure safe operation of the unit.

MS 250V / MS 300V power supply series has been designed to use with shielded wires thus minimizing any potential shock hazard to the user. Major Science recommends against the use of unshielded wires.

To avoid electrical shock:

1. In the event of solution accidentally spilled into the instrument, it must be dried out for a period of time, at least 2 hours, and restored to NORMAL CONDITION before each operation.
2. NEVER connect or disconnect wire leads from the power jacks when the red indicator light at the Start/Stop key is light.
3. WAIT at least 5 seconds after stopping a run before handling output leads or connected apparatus.
4. ALWAYS make sure that hands, work area, and instruments are **clean** and **dry** before making any connections or operating the power supply.
5. ONLY connect the power cord to a properly 3-prong grounded AC outlet,

using the power cord provided with the power supply.

Avoiding Damage to the Instrument

1. Do not attempt to operate the device if it is damaged.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight etc).
3. For proper ventilation and safety concerns, keep at least 10 cm of space behind the instrument, and at least 5 cm of space on each side.
4. Do not operate the power supplies in high humidity environments (> 95%), or where condensation may occur.
5. When the power supply series is taken into a cold room environment, the unit can be operated immediately. However, when the power supply series is removed from the cold room environment, let the unit equilibrate to room temperature for a minimum of 2 hours before using it.
6. Prior to apply any cleaning or decontamination methods other than manufacturer's recommendation, users should check with the manufacturer's instruction to confirm if the proposed method will not damage the equipment.

Equipment Operation

Follow the guidelines below to ensure safe operation of the unit:

1. It must be checked the displayed figure to see if it is in the normal condition for use before using this unit.
2. NEVER access dangerous chemistry or other material to prevent possible hazards of explosion and damage.

Symbols

The symbols used on MS 250V / MS 300V Power Supply are explained below.

Used on MS Power Supply to indicate an area where a potential shock hazard may exist.
Used on MS Power Supply to indicate a warning. Consult the manual to avoid possible personal injury or instrument damage.

Used on MS Power Supply to indicate a disposal instruction.
DO NOT throw this unit into a municipal trash bin when this unit has reached the end of its lifetime. To ensure utmost protection of the global environment and minimize pollution, please recycle this unit.

Product Specifications

Output Voltage / Inc	2~250V / 1V for MP-250V
	2~300V / 1V for MP-300V
Output Current / Inc	1~700mA / 1mA
Max. Watt	150W
Operating Constants	Voltage or Current
Control	Microprocessor Controller
Terminator Pairs	4 pairs
Timer	1~999 mins with alarm, continuous
Safety Device	No Load detection
	Leakage detection
	Over temperature protection
	Over load protection
	Shrouded plugs and sockets
	Sudden load change detection
Crossover	Yes
Operating Temperature	Ambient to 40˚C
Unit Dimension	190 x 305 x 95 mm (W x L x H)
Construction Material	Flame retardant ABS faceplate and aluminum
Rated Voltages	100 ~ 240 Volt; 47/60Hz
Stackable	Yes
Weight	approx. 2.5 kg

Product Description

Major Science MS 250V (Cat. No. MP-250V) and MS 300V (Cat. No. MP-300V) power supplies are designed to meet most electrophoresis needs in a personal, single, easy to use unit. This manual describes the setup and operation of MS 250V / 300V Power Supply, including important information on safety and maintenance of the unit. MS 250V and MS 300V power supplies are capable of running horizontal & vertical electrophoresis, and two-dimensional electrophoresis SDS-PAGE applications. In addition, a Timer with alarm function is also equipped in the unit, and so is Pause function. Furthermore, the powerful specifications plus four pairs of terminator pairs could be used for multi electrophoresis units simultaneously. The stackable case design is another feature to save bench top space.

Major Science MS 250V power supply and MS 300V power supply both provide Constant Voltage or Constant Current to instruments used in electrophoresis. 4 pairs of terminator and the much powerful specification equipped enable the maximum capability of MS 250V / MS 300V power supply series compared to other existing similar product on the market.

Features of MS 250V power supply:

- Compact size
- Advanced capacity: 150W, 700mA, 250V
- Microprocessor controller
- Constant voltages and constant currents
- Four pairs of outlet terminator
- Timer with alarm function
- Advanced safety devices
- Stackable case
- Wide applications for DNA, RNA and protein electrophoresis

Features of MS 300V power supply:

- Compact size
- Advanced capacity: 150W, 700mA, 300V
- Microprocessor controller
- Constant voltages and constant currents
- Four pairs of outlet terminator
- Timer with alarm function
- Advanced safety devices
- Stackable case
- Wide applications for DNA, RNA and protein electrophoresis

Introduction

Overview

Major Science MS 250V and 300V Power Supplies are recognized as one of the most advanced power supplies equipped with outstanding specifications to cover the majority of electrophoresis applications on the market. Sufficient and accurate output voltages, four pairs of terminator, compact size, RoHS and CE compliance for safety concerns can deliver accurate and reliable experimental results from one experiment to another. Both of them are perfectly designed to accomplish with any of electrophoresis systems/ units on the market.

Front of Unit

(Example of MS 250V power supply)

Note: MS 300V power supply shares the same configurations

Rear of Unit

(Example of MS 250V power supply)

Note: MS 300V power supply shares the same configurations

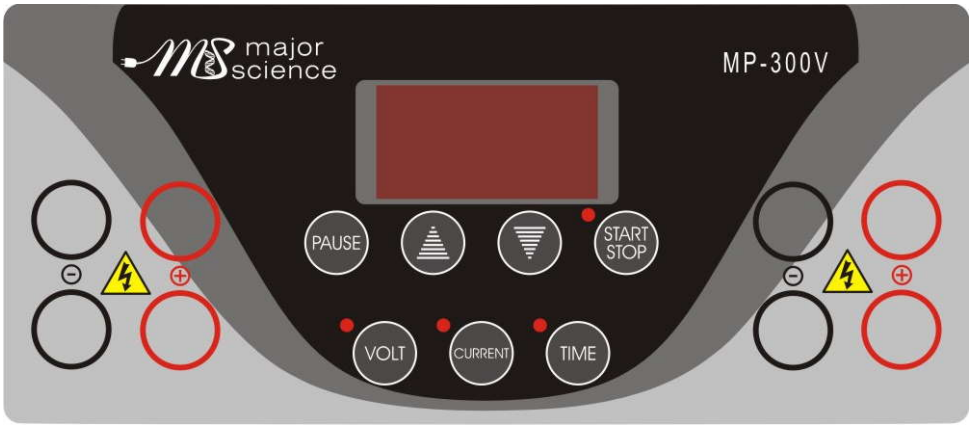
Controls and Features

Please refer to Figures on the following page for the location of the following controls and features.

MS 250V Power Supply

Cat. No.: MP-250V

MS 300V Power Supply



Cat. No.: MP-300V

Front Control Panel

1. **Key** – to increase either Voltage or Current or Time value

2. **Key** – to decrease either Voltage or Current or Time value

3.

Key – to activate or stop the unit

4.

Key – to temporarily interrupt power to an operation in progress without terminating electrophoresis and to resume power after pausing without resetting the timer.

5.

Key – to select Voltage value

6.

Key – to select Current value

7.

Key – to set or select Timer mode

Installation Instructions

Major Science MS 250V / MS 300V Power Supply series is actually an already installed instrument. As long as it is placed on a sturdy and level surface in a safe, dry place, and is further connected with well-prepared electrophoresis system, it is ready for operation.

Operation Instructions

1. Place MS 250V / MS 300V Power Supply series on a sturdy and level surface in a safe, dry place, away from laboratory traffic.

2. Ensure that the AC power switch is OFF, and then plug the three-pronged power cord into a grounded three-prong AC outlet of the appropriate voltage (110V to 240V as indicated on the rating sticker near the AC cord on the back of the unit).

3. Turn the AC power ON by the switch on the rear.

4. Connect the DC output jacks from the electrophoresis unit; insert the red lead (+) into the red output jack, and the black lead (-) into the black output jack.

5. Press

Key, and then press Key or Key to select the suitable voltage.

6. Press

Key, and then press Key or Key to select the suitable current, alternatively.

7. Press

Key, and then press Key or Key to adjust timer in minute format upon your request if setting time is required. It will auto stop while timer is up (count down).

Note: When timer is set as “0”, it means continuous operation.

8. Press

Key to start the run.

, the LED is lit.

9. After pressing

Key to start the run, if it is Constant Voltage,

, the LED is flashing. Alternatively, if it is Constant Current,

, the LED is

flashing.

10. Press

Key to temporarily interrupt the run if necessary.

, the LED is flashing. Press

Key to restart the run.

11. Press

Key again to stop the unit at any time if necessary.

12. When the run is completed, operation stops with alarm and the screen shows

. Press

Key to terminate a timed run, and Turn the AC power OFF by the switch on the rear.

Troubleshooting Guide

Many operating problems may be solved by carefully reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. Should these suggestions not resolve the problem, contact our SERVICE DEPARTMENT or a distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Problem	Cause	Solution
No Display / lights	No AC power	Check if MS power supply is unplugged, or AC power source problem
	AC power cord is not connected	Check AC power cord connections at both ends. Use the correct cords.
	The fuse has blown	Replace the fuse
Repeated fuse broken	Hardware failure	Contact Major Science service department
Operation stops with alarm: The screen displays	Electrophoresis leads are not connected to the power supply or to the electrophoresis unit(s), or there is a broken circuit in the electrophoresis cell	Check the connections to the power supply and on your electrophoresis cell to make sure the connection is intact; check condition of wires in electrophoresis unit. Close the circuit by reconnecting the cables. Press **START/STOP** to restart the run.
	High resistance due to tape left on a pre-cast gel, incorrect buffer concentration, or incorrect buffer volumes in the electrophoresis cell	Correct the condition by making sure the tape is removed from the pre-cast gel, buffers are prepared correctly, and the recommended volume of buffer is added to the electrophoresis unit.
Operation stops with alarm: Display shows	Over Current	- Verify that the running buffer is correct. - Verify the all cables are attached correctly - Turn the Power switch off and on again; restart application. - If you cannot restart the instrument, turn off the power, disconnect the power cord from the outlet, and contact Technical Service.

Operation stops with alarm: Display shows 	Over Voltage	- Verify that the running buffer is correct. - Verify the all cables are attached correctly - Turn the Power switch off and on again; restart application. - If you cannot restart the instrument, turn off the power, disconnect the power cord from the outlet, and contact Technical Service.
Operation stops with alarm: Display shows 	Ground leak detected during run	Check the electrophoresis system for improper grounding. Restart the power supply by turning the Power switch off and on.
Operation stops with alarm: Display shows 	Power supply is overheating	- Turn off power supply. Check for sufficient airflow around the power supply fan. After cooling down, restart the power supply by turning the Power switch to the on position. - If you cannot restart the instrument, turn off the power, disconnect the power cord from the outlet, and contact Technical Service.
Operation stops with alarm: Display shows 	Bad connections for terminal connectors or damaged wires or damaged platinum wires	Check all the connections to terminators, cables, wires, and gel tanks
Operation stops with alarm: Display shows and countdown	Power supply is getting restart ON	- Verify that the electrophoresis condition and system is correct. - Pay attention to the own safety.

Encountering Problems

1. Check the troubleshooting section.
2. Call Technical Service or e-mail to service@majorsci.com
3. If the unit must be shipped back for repair, contact Major Science or the distributor for a Return Authorization Number and shipping instructions. The unit will be repaired as quickly as possible and returned to you.

Replacing the Fuse

For additional fuses, contact Major Science co. ltd.

To replace the fuse:

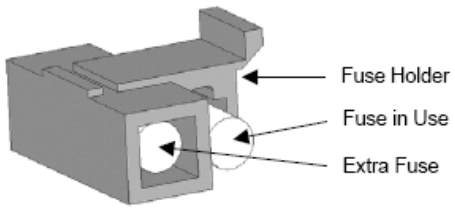
1. Turn off the main power switch on the rear of MS 250V or MS 300V Power Supply and detach the power cord from the rear of MS 250V or MS 300V Power Supply.

2. Open the fuse compartment located inside the Power Entry Module by inserting a small flat blade screwdriver into the slot below the ON/OFF switch. Turn the screwdriver to gently pry open the fuse compartment. **Note**: The fuse compartment will not open with the power cord in place.

3. Pull the fuse holder out of the compartment and inspect the fuse. If the fuse is burned or there is a break in the fuse element, replace the fuse with an identical type of fuse (2A/250V~) as provided in the fuse holder (see figure below).

4. Place the fuse holder back into the compartment.

5. Snap the cover closed.



Maintenance

MS 250V and 300V Power Supply series uses all solid-state components and should require no maintenance or recalibration under normal use. The housing may be cleaned with a dry cloth. If the unit must be returned for repair, contact our **SERVICE DEPARTMENT** or your local distributor for shipping instruction.

Ordering Information

MS 250V / MS 300V Power Supply

Cat. No.	*Description*
MP-250V	MS 250V Power Supply
MP-300V	MS 300V Power Supply

Warranty

Major Science warrants apparatus of its manufacture against defects in materials and workmanship, under normal service, for ***two years from the shipping date to purchaser***. This warranty excludes damages resulting from shipping, misuse, carelessness, or neglect. Major Science's liability under the warranty is limited to the receipt of reasonable proof by the customer that the defect is embraced within the terms of the warranty. All claims made under this warranty must be presented to Major Science within two years following the date of delivery of the product to the customer.

Manufacturer:
Major Science Co., Ltd.

Address:
No.7, Hwai-Der Street,
Pan-Chiao City, Taipei Hsien 22045,
Taiwan

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Contact Information

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Major Science Co., Ltd

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